Workshop on ASTER and MODIS Data
for
Land Surface Studies

September 14-17, 2004
USGS EROS Data Center
Sioux Falls, SD 57198

Laboratory Exercise
on
Using ASTER Data for Geologic Mapping in Semi-Arid Terrain

Exercise Worksheet

<u>Introduction</u>

Use this worksheet to track your Geologic Mapping Exercise activities, including decisions made, data ordered, analyses performed, interpretations made, etc.

<u>Honing in on the Area</u>

Remember, the old prospector said the main area of interest is 39º 30' 00.00" North Latitude and 113º 00' 00.00" West Longitude.

<u>Selecting Your ASTER Data and Products</u>

Scene ID and date of the ASTER L1B scene selected _____

_____.

List of ASTER higher-level standard data products ordered:

Product ID of DEM ordered, if any _____

Reducing the Size of the Area of Interest

SWIR and TIR data resize: SWIR image size prior to resizing: _____.

SWIR image size after resizing: _____.

TIR image size prior to resizing: _____.

TIR image size after resizing: _____.

VNIR pixel closest to **39º 39' 4.43" N, 113º 6' 9.68" W** _____.

SWIR pixel closest to **39º 39' 4.43" N, 113º 6' 9.68" W** _____.

TIR pixel closest to **39º 39' 4.43" N, 113º 6' 9.68" W** _____.

Name of new 14-band image of the old prospector's Murd Mts. area:

Creating Enhanced Image Products for Interpretation

Contrast-Enhanced, False-Color Composite.

Name given enhanced FCC image saved:

Stretch parameters applied: Red lower limit DN _____; Red upper limit DN _____.

Green lower limit DN _____; Green upper limit DN _____.

Blue lower limit DN _____; Blue upper limit DN _____.

Source image used for stretch applied: ____ Scroll   ____ Image   ____ Zoom

Band Ratio Images.

Record your general observations about the ratio images you produced:

2/1 –

4/6 –

4/7 –

4/8 –

6/2 –

7/2 –

8/2 –

List the ratio images you saved and note why you selected them as the best ratio combinations for interpretation:

Decorrelation Stretch Images.

Because you converted your data to a 14-band image where all bands are the same size, you can mix data from any of the three different ASTER telescopes in generating you Decorrelation stretch images.

List the decorrelation stretch images you saved and note why you selected them as the best combinations for interpretation:

Principal Components Analysis.

Record your general observations about the 9 PC images you produced from the VNIR-SWIR bands:

PC 1 –

PC 2 –

PC 3 –

PC 4 –

PC 5 –

PC 6 –

PC 7 –

PC 8 –

PC 9 -

List the color PC images you saved and note why you selected them as the best PC combinations for interpretation:

Record your general observations about the 6 PC images you produced from the SWIR bands:

PC 1 –

PC 2 –

PC 3 –

PC 4 –

PC 5 –

PC 6 –

List the color PC images you saved and note why you selected them as the best PC combinations for interpretation:

Interpreting Murd Mt. Enhanced Image Products

List the enhanced image products you printed for the manual interpretation part of this exercise:

FCC Image:

Ratio Image(s):

Decorrelation Stretch Image(s):

Principal Components Image(s):

Interpretation Notes:

Using the ASTER DEM of the Murd Mts.

Notes:

The ASTER Higher-Level Standard Data Products.

Notes: